

NASA HRP Plans for Collaboration at the IBMP Ground-based Experimental Facility (NEK)  
Ronita L. Cromwell, PhD  
Baylor College of Medicine  
Houston, TX USA

NASA and IBMP are planning research collaborations using the IBMP Ground-based Experimental Facility (NEK). The NEK offers unique capabilities to study the effects of isolation on behavioral health and performance as it relates to spaceflight. The NEK is comprised of multiple interconnected modules that range in size from 50-250m<sup>3</sup>. Modules can be included or excluded in a given mission allowing for flexibility of platform design. The NEK complex includes a Mission Control Center for communications and monitoring of crew members. In an effort to begin these collaborations, a 2-week mission is planned for 2017. In this mission, scientific studies will be conducted to assess facility capabilities in preparation for longer duration missions. A second follow-on 2-week mission may be planned for early in 2018. In future years, long duration missions of 4, 8 and 12 months are being considered. Missions will include scenarios that simulate for example, transit to and from asteroids, the moon, or other interplanetary travel. Mission operations will be structured to include stressors such as, high workloads, communication delays, and sleep deprivation. Studies completed at the NEK will support International Space Station expeditions, and future exploration missions. Topics studied will include communication, crew autonomy, cultural diversity, human factors, and medical capabilities.